

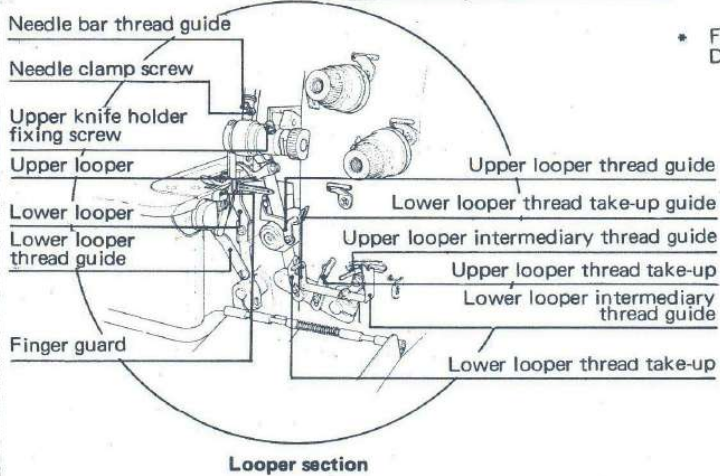
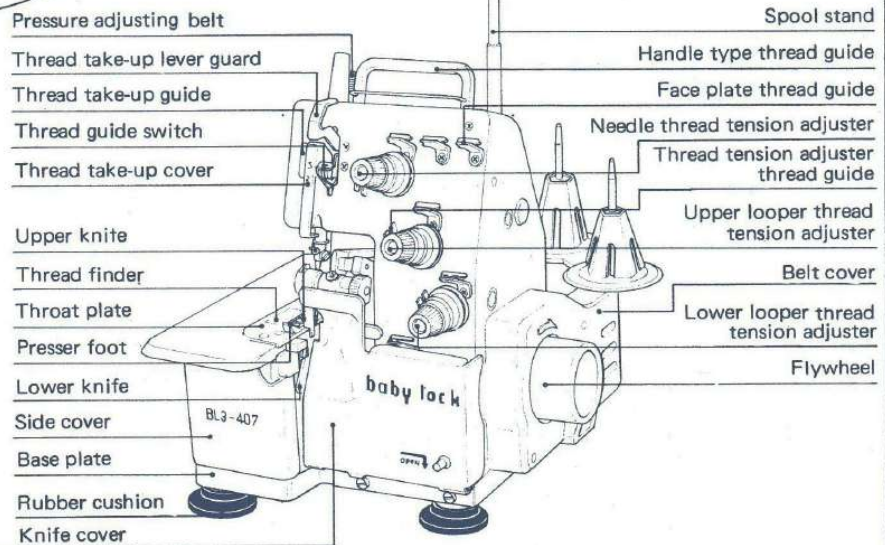
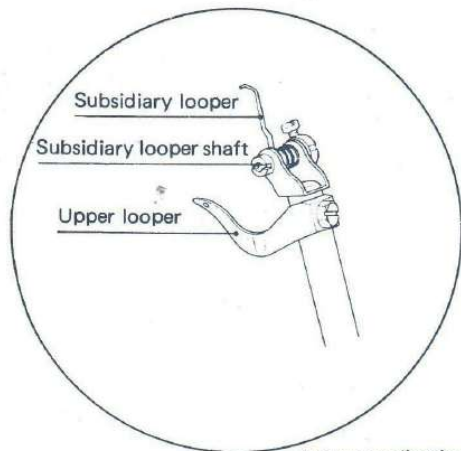
baby lock

2-thread / 3-thread Overedging Sewing Machine

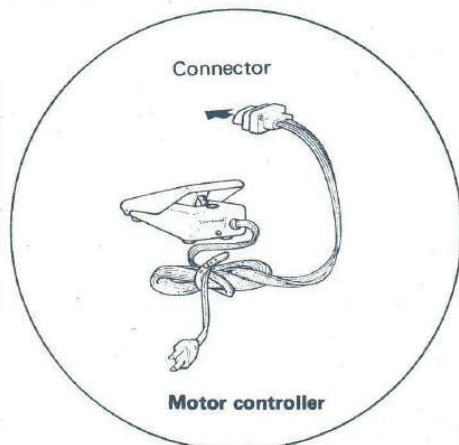
MODEL BL3-407

INSTRUCTION BOOKLET





- For safety, remove power supply plug after use. Do not place objects on the controller.



INTRODUCTION

Thank you for your purchase of our Baby Lock Model BL3-407.

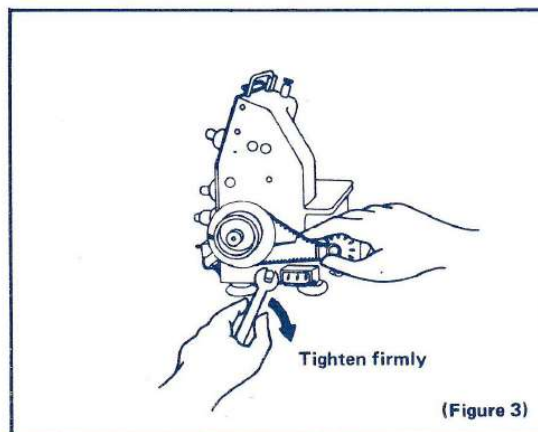
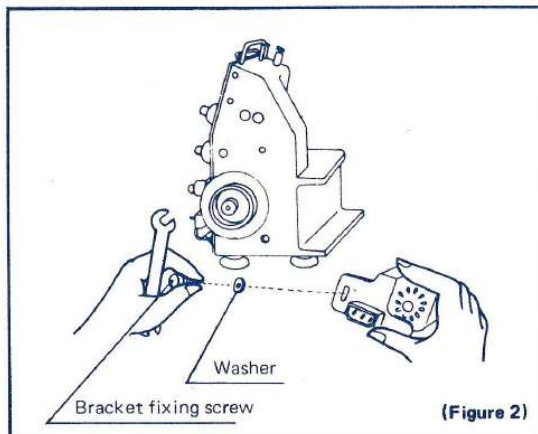
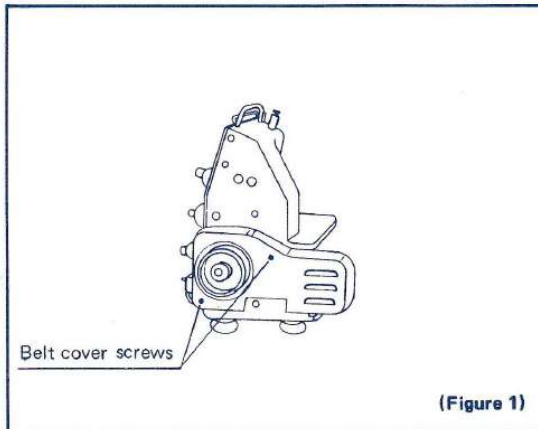
This machine not only works as two machines, both 3-thread and 2-thread overedgers, but can sew a wide range of fabrics, from the thickest to the thinnest materials.

This instruction booklet will be your guide to correct operation of Model BL3-407. Read this booklet carefully and you will be the real master of your new machine.

CONTENTS

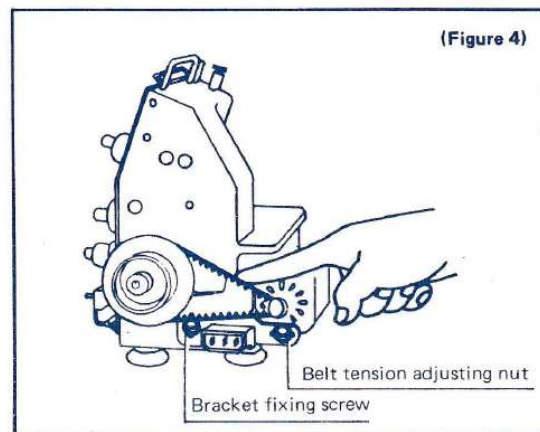
1. Fitting of motor	2
2. Preparation for sewing	4
2-1 Prior to threading	4
2-2 For changing threads	5
2-3 For 3-thread overedging	6
2-4 Switching from 3-thread overedging to 2-thread overedging	9
2-5 Switching from 2-thread overedging to 3-thread overedging	11
2-6 Checking blank starting stitches	12
3. Thread tension adjustment	13
3-1 Adjustment for 3-thread overedging	13
3-2 Adjustment for 2-thread overedging	14
4. Sewing very thick cloths or making cross seams	15
5. Presser foot adjustment	15
6. How to replace needle	16
7. Stitch length adjustment	17
8. Bight width adjustment	18
9. Replacing knives	19
9-1 How to replace the lower knife	19
9-2 How to replace the upper knife	19
10. Lubrication	20
11. For setting sewing machine light	20
12. Checking and adjustment	21
13. Replacing carbon brush of motor	22
14. Packing list	23
15. Specifications	23
16. Application reference for cloth, thread and needles	24

1 FITTING OF MOTOR

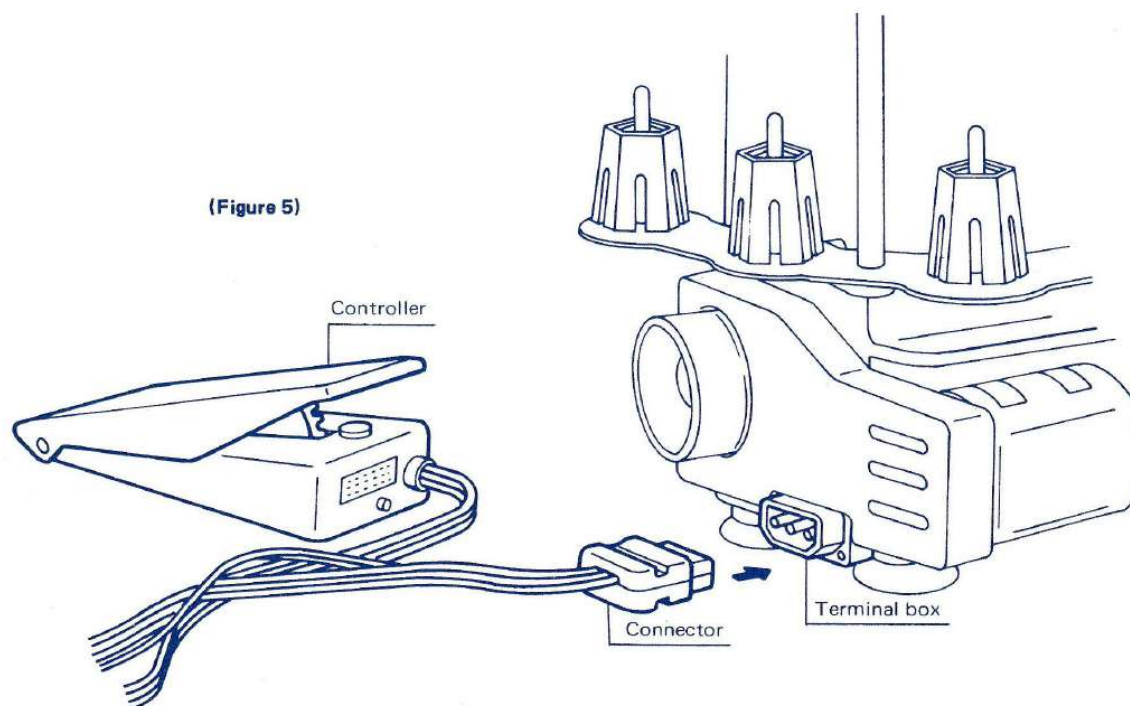


Mount the motor correctly onto the machine body as follows:

- Remove the belt cover by loosening both belt cover screws (Figure 1).
 - Mount the motor onto the machine body by tightening the bracket fixing screw while setting the V-belt in place at the same time, as shown in Figure 3. (The bracket fixing screw, washer and V-belt are enclosed together in the carton).
- Belt tension will be most suitable when the V-belt bends slightly under finger pressure (see Figure 4). Make belt tension adjustments by shifting the position of the belt tension adjusting nut accordingly (Figure 4).
- Re-attach the belt cover.



(Figure 5)



Connecting controller to motor

Put the connector in the terminal box socket, as shown in Figure 5. Then put power inductive plug into the power supply socket.

The machine runs faster as the controller pedal is pressed down farther and slower as the pedal is let up.

* For safety, be sure to remove the power supply plug after use. Also be sure not to place objects on the controller.

2

PREPARATION FOR SEWING

The one hand threading system of this machine ensures you the easiest possible threading. You only have to thread correctly along the color-coded thread passages.

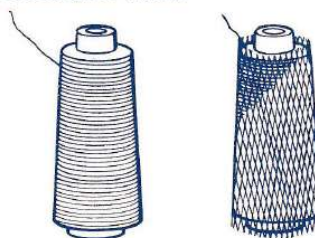
2-1 Prior to threading

(1) Setting of spool

Cheese (or cone) spool thread will be usually used for this machine. Bobbin spool thread is also available when held by *bobbin supporter, as shown in Figure 7.

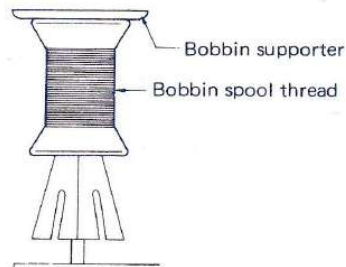
* available separately at order

Cheese spool thread



Fit 'baby net' (accessory) to cover spool when you use synthetic threads that are liable to frizzle.

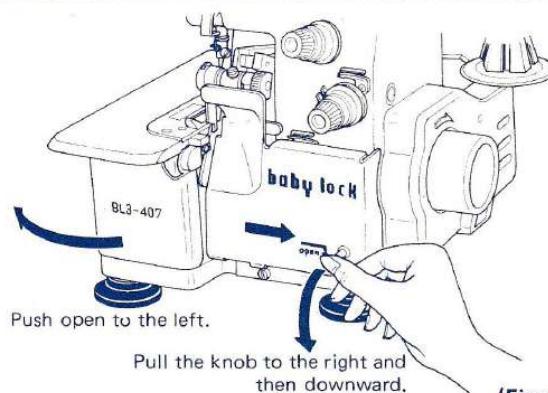
(Figure 6)



(Figure 7)

(2) How to open knife cover and side cover (Figure 8)

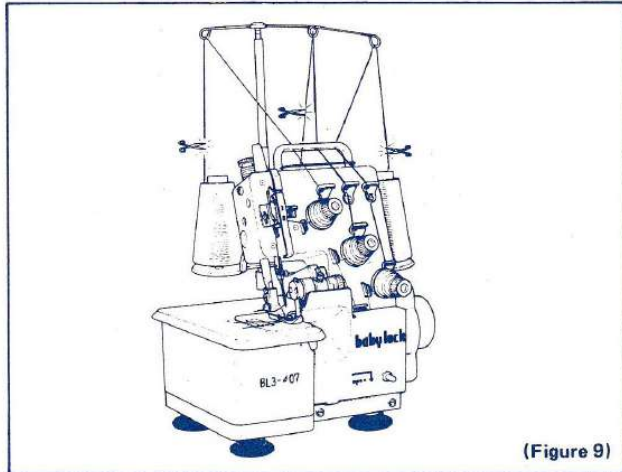
Pull the knife cover knob to the right and then downward. Push open the side cover to the left.



(Figure 8)

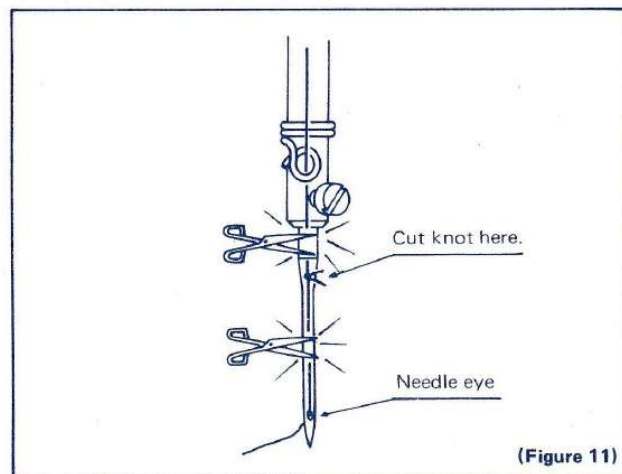
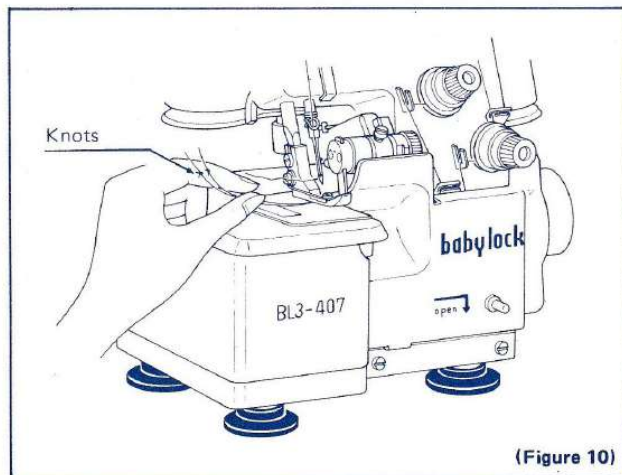
2-2 For changing threads

- (1) Cut the thread (to be changed) near the spool and tie the new thread to the remaining piece of thread on the machine, as shown in Figure 9.
- (2) Lift up presser foot.



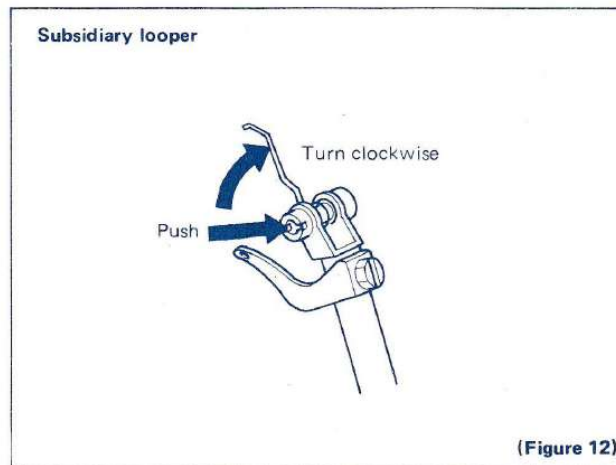
- (3) Lift tension adjuster knob so that it passes the knot of linked thread smoothly, and draw the thread till the knot comes about 10 cm past the presser foot (Figure 10).

Note: Special care must be taken when changing "needle thread":
Cut off the knot before it is drawn too near to the needle eye so as to avoid possible bending of the needle by pulling the knot caught in the needle eye (see Figure 11).



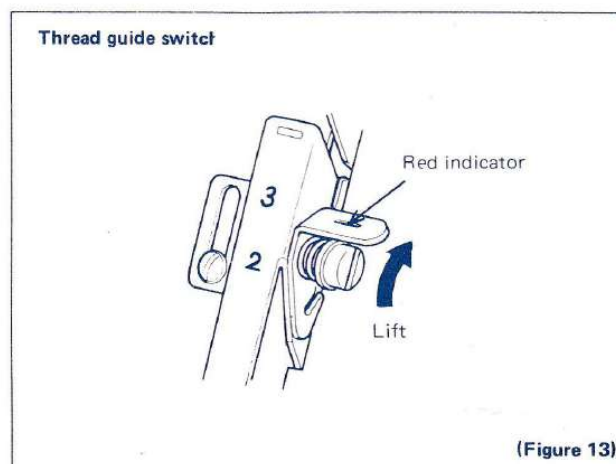
2-3 For 3-thread overedging

This machine is pre-adjusted for 3-thread overedging and when unpacked will be found set accordingly with three trial threads.



- **Position of subsidiary looper and thread guide switch**

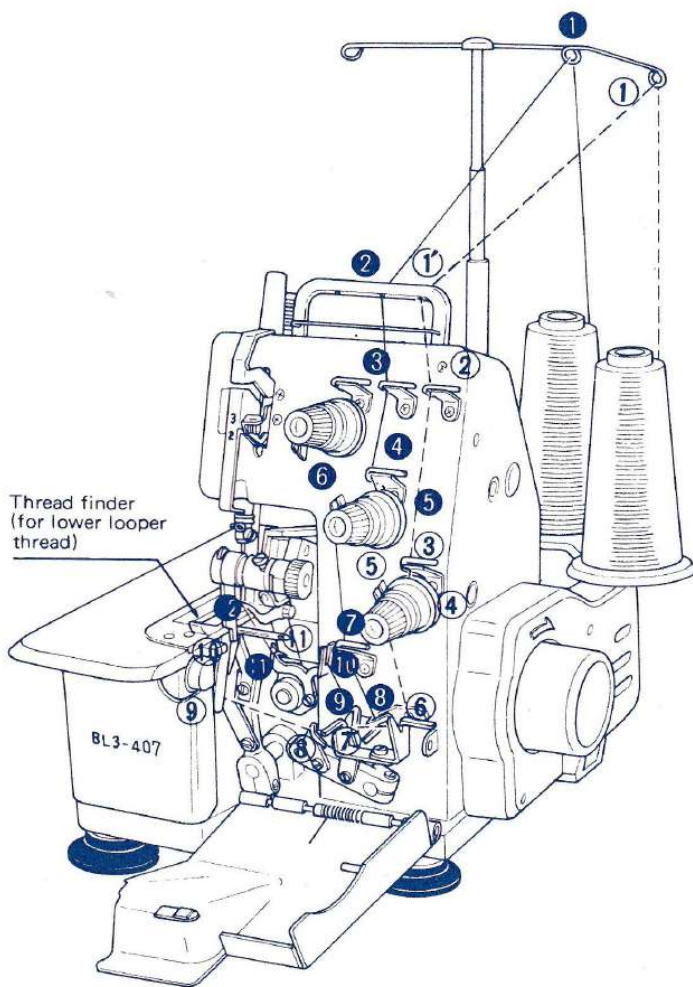
For 3-thread overedging, the subsidiary looper and thread guide switch should be set in the positions shown in Figure 12 and Figure 13, respectively.



* Handling guides for the subsidiary looper and thread guide switch is charted on the back side of the knife cover.

● **How to set looper thread**

- (1) Open both knife cover and side cover.
- (2) Set the upper looper thread according to the 'pink code.'
Draw out the thread about 10 cm away from the presser foot* (see Figure 14 and Figure 15).



(Figure 14)

- (3) Set the lower looper thread in accordance with the 'yellow code.'

The lower looper may be threaded most easily in the following manner:

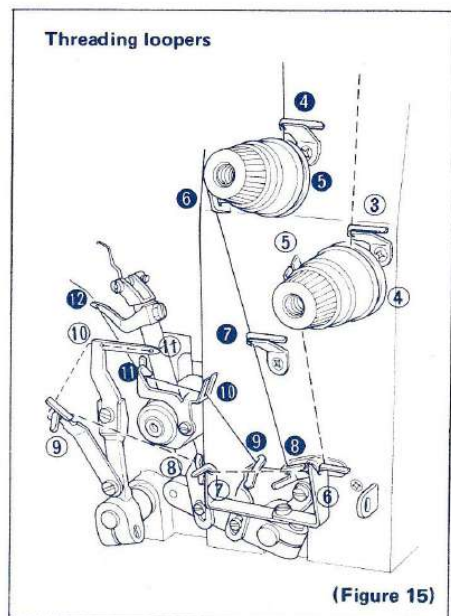
Turn the flywheel clockwise to bring the lower looper to the far left.

Thread through the lower looper thread guide ⑨ and the lower looper first hole ⑩ while looking through the thread finder. Then bring the lower looper to the far right and thread it through the lower looper second hole ⑪.

Draw out the thread about 10 cm away from the presser foot (see Figure 14 and Figure 15).

Close both knife cover and side cover.

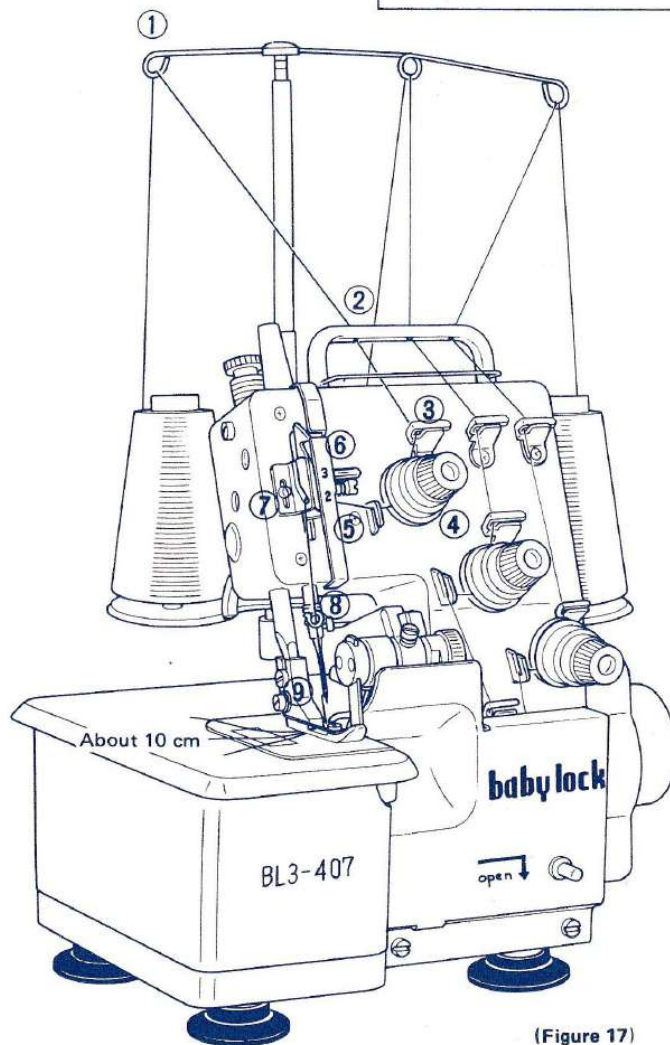
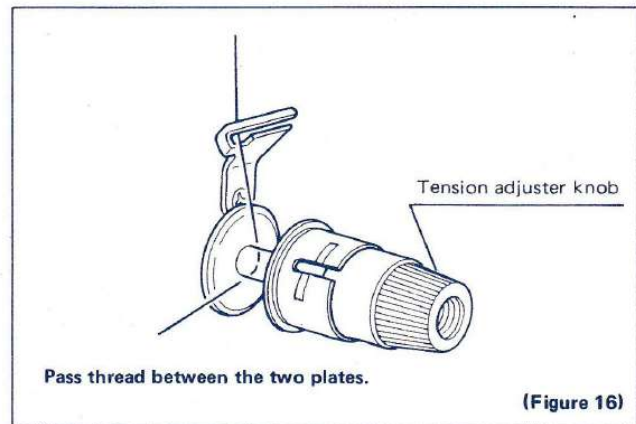
* A threading guide is charted on the back side of the side cover.



(Figure 15)

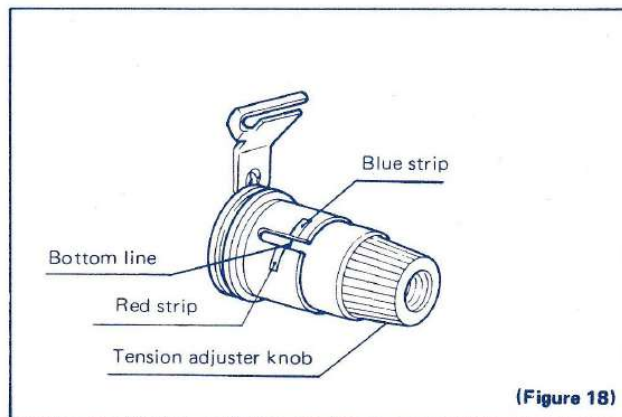
- **How to set needle thread**

Correctly set the needle thread in accordance with the 'blue code' referring to Figure 16 and Figure 17. Then, be sure to pass the thread through the needle eye from this side out into the other side (hollow side). Draw out the thread about 10 cm away from the presser foot.



- **Position of thread tension adjuster knob**

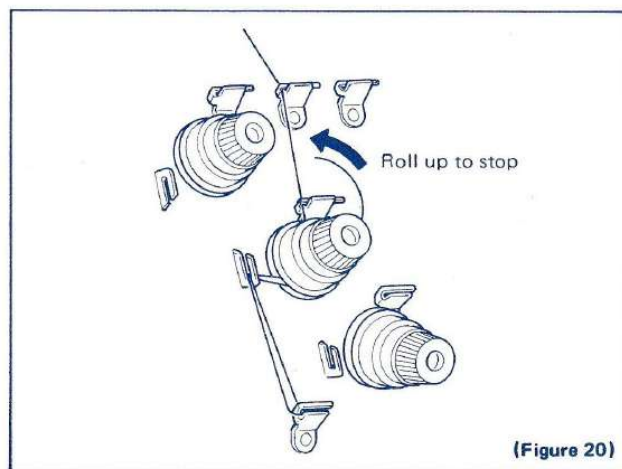
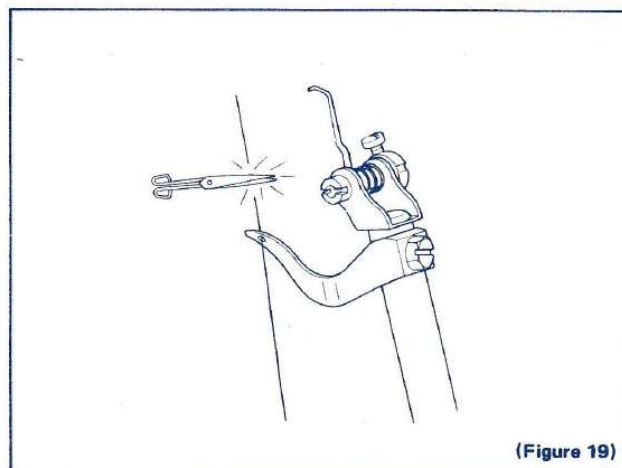
When you carry out 3-thread overedging, the bottom line of each tension adjuster knob should be ranged within the blue strip zone. First, match the bottom line with the center of the blue strip zone as standard position.



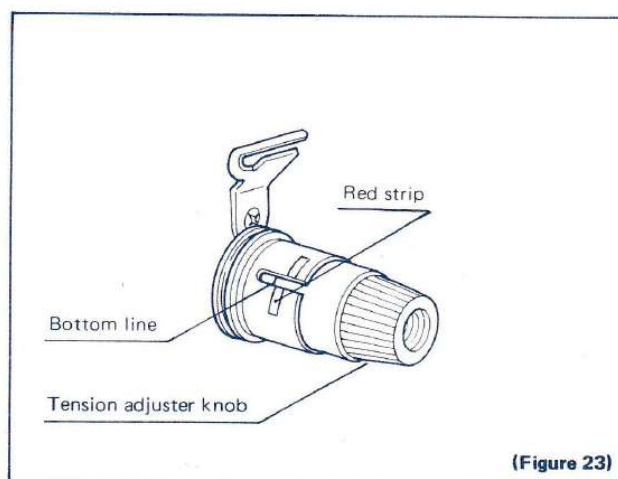
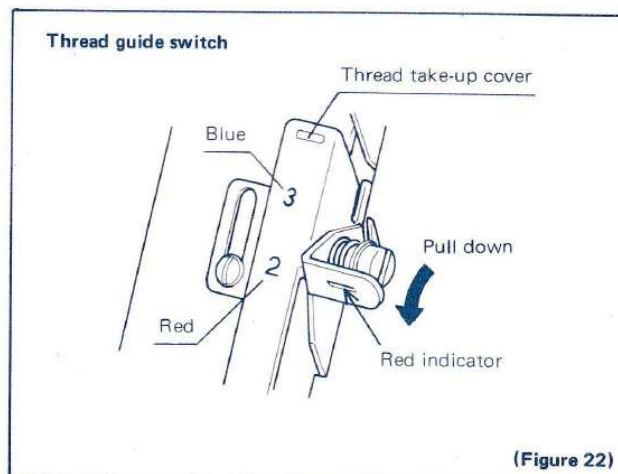
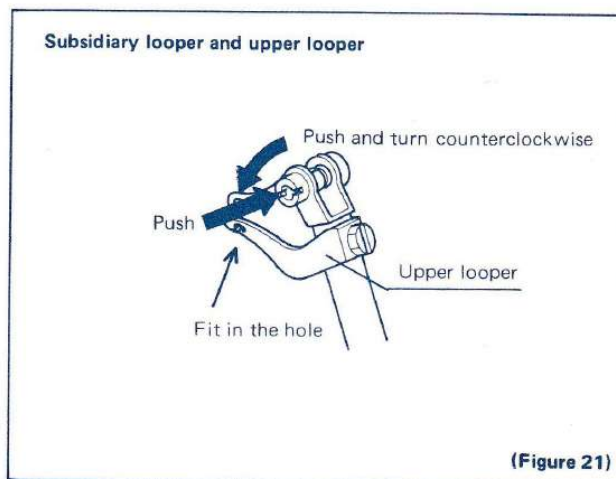
2-4 Switching from 3-thread overedging to 2-thread overedging

For switching from 3-thread overedging to 2-thread overedging, follow the instructions below:

- (1) Turn the flywheel clockwise to bring the needle to the lowest position.
- (2) Cut the upper looper thread as shown in Figure 19. Roll up the end of the live thread to be stopped at the upper looper thread tension adjuster, as shown in Figure 20.



- (3) Push with a finger or a screw driver the head of the subsidiary loopers shaft and turn it counterclockwise to make the subsidiary loopers tip fit into the upper loopers hole, as shown in Figure 21.
- (4) Turn the thread guide switch down to "2" (red color). (The switch clicks when its red indicator comes in line with the "2" marked red on the thread take-up cover.
- (5) Loosen the needle thread tension by turning the adjuster knob till its bottom line comes up and meets the center of the red strip zone. Likewise, tighten the lower loopers thread tension by turning the adjuster knob till its bottom line comes down and meets the center of the red strip zone.



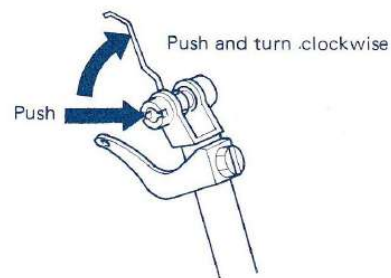
2-5 Switching from 2-thread overedging to 3-thread overedging

For switching from 2-thread overedging to 3-thread overedging, follow the instructions below:

- (1) Turn the flywheel clockwise to bring the needle to the lowest position.
- (2) With a finger or a screw driver push the head of the subsidiary looper shaft and turn it back clockwise till it stops, as shown in Figure 24.

N.B. Do not stop the subsidiary looper half way; it may cause problems if left free.

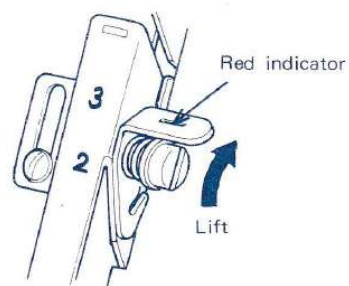
Subsidiary looper



(Figure 24)

- (3) Turn up the thread guide switch to "3" (blue color). (The switch clicks when its red indicator meets the "3" marked blue on the thread take-up cover, as shown in Figure 25.)
- (4) Set the upper looper thread, as shown in Figure 14 (Page 7).
- (5) Tighten the needle thread tension by turning the adjuster knob till its bottom line comes down and meets the center of the blue strip zone. Likewise loosen the lower looper thread tension by turning the adjuster knob till its bottom line comes up and meets the center of the blue strip zone (see Figure 18, Page 9).

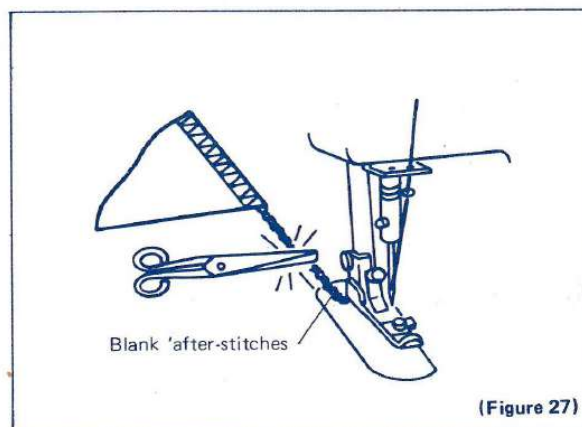
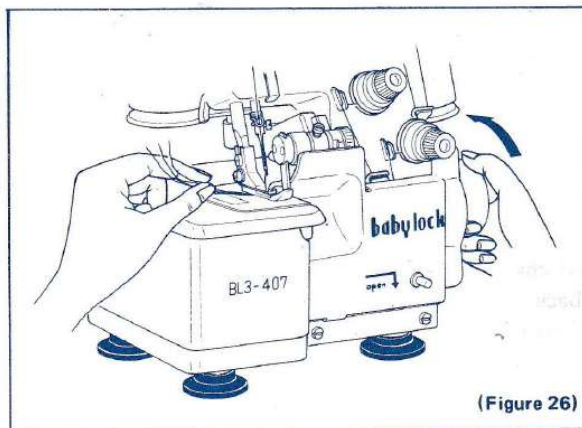
Thread guide switch



(Figure 25)

2-6 Checking blank starting stitches

- (1) Before starting actual sewing, turn the fly-wheel slowly clockwise by hand while lightly pulling the ends of the threads together with a finger pick, as shown in Figure 26. Check if the threads are forming satisfactory blank starting stitches. Then, set the material to be worked on, and start actual sewing.
- (2) Improper thread tension balance will cause puckering and/or skip stitches. For good thread tension adjustment, refer to the next chapter, "Thread Tension Adjustment."
- (3) Cut the free end of the blank 'after-stitches' to leave 2 ~ 3 cm from the end of actual stitches just done. (Figure 27).



3 THREAD TENSION ADJUSTMENT

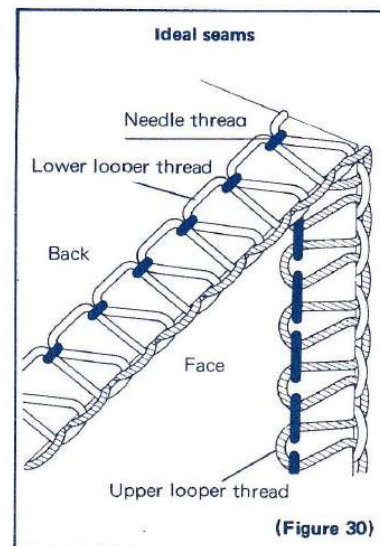
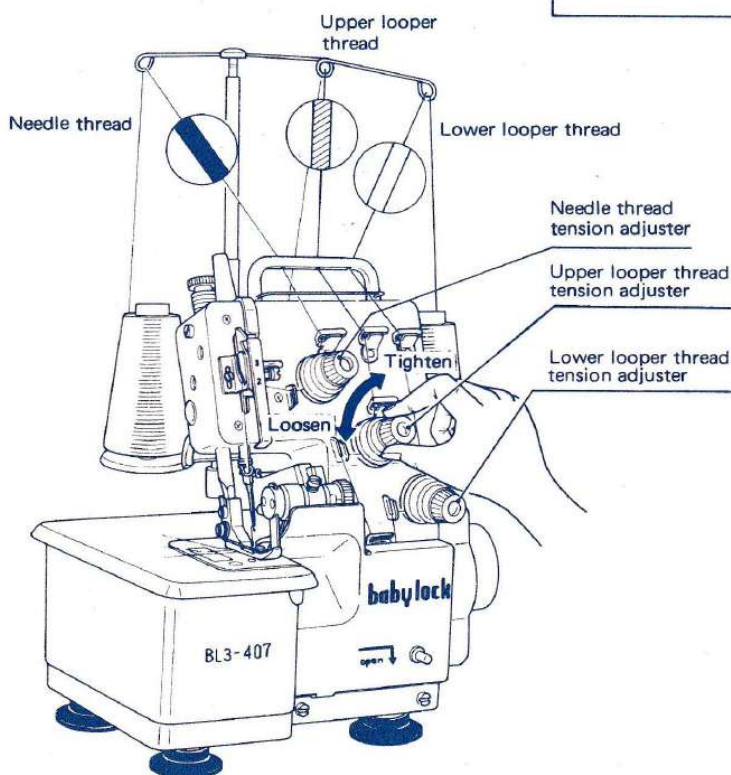
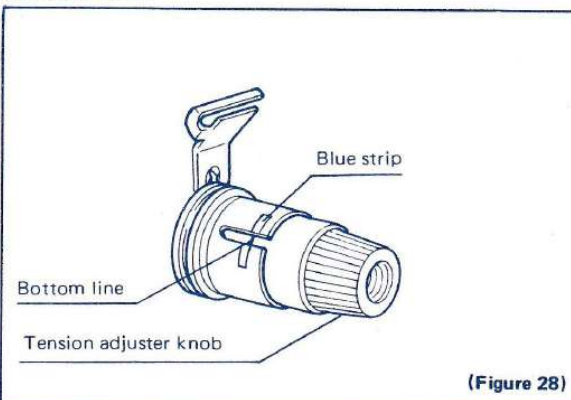
There is a basic difference in the thread tension adjustment standard between 3-thread and 2-thread overedgings: In each case, tension adjustment varies by the type and thickness of threads to be used and the materials to be sewn.

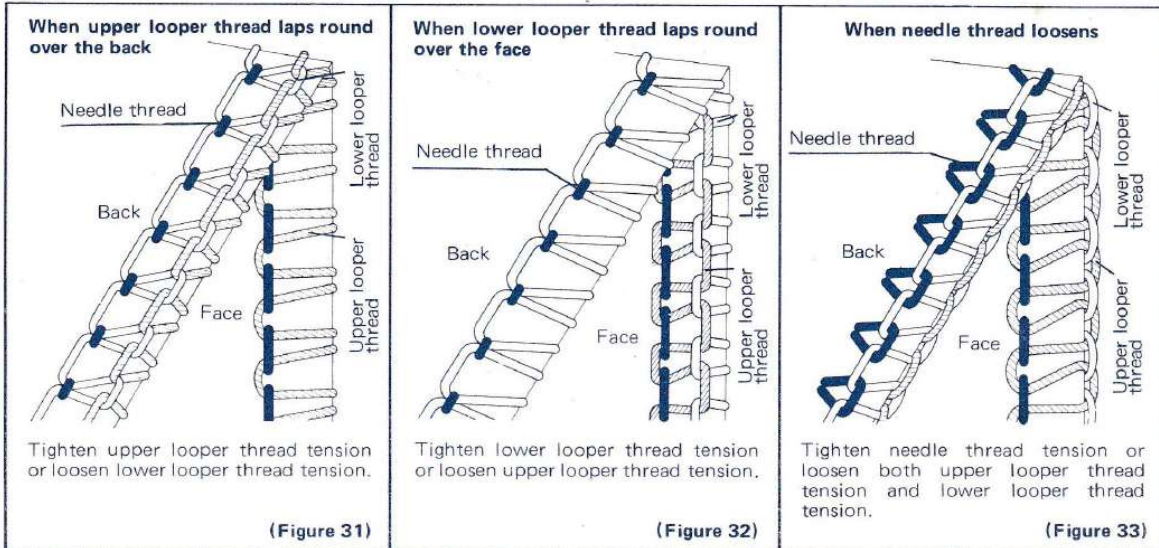
Make thread tension adjustments accordingly with reference to "Application Reference for Cloth, Thread and Needles" (Page 25), examining the seams coming out each time.

3-1 Adjustment for 3-thread overedging

The bottom line of each thread tension adjuster knob should be ranged within the blue strip zone on the adjuster dial cover (Figure 28).

First, line up the bottom lines of all three tension adjuster knobs with the center of the blue strip zone. Then make minute adjustments of each adjuster, checking the seams coming out with each adjustment. Figure 30 shows ideal seams sewn by 3-thread overedging.



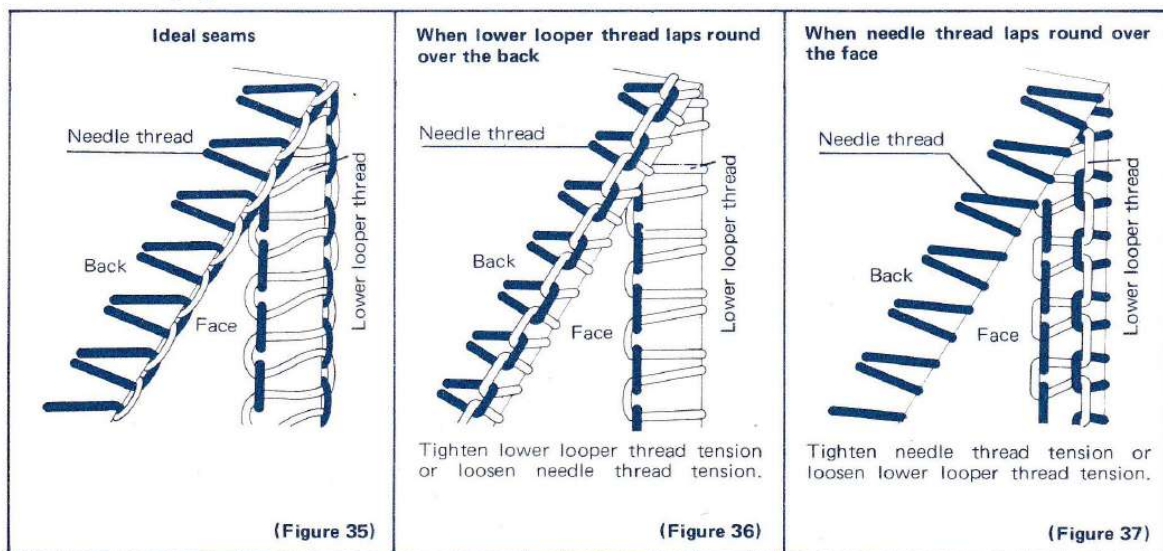
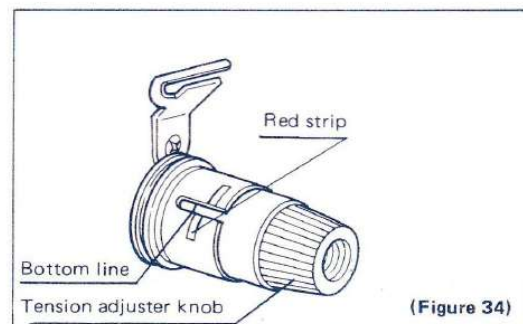


3-2 Adjustment for 2-thread overedging

The bottom line of each thread tension adjuster knob should be ranged within the red strip zone on the adjuster dial cover (Figure 34).

First, line up the bottom lines of the both tension adjuster knobs with the center of the red strip.

Then make minute adjustments of each adjuster, checking the seams coming out with each adjustment. Figure 35 shows ideal seams sewn by 2-thread overedging.

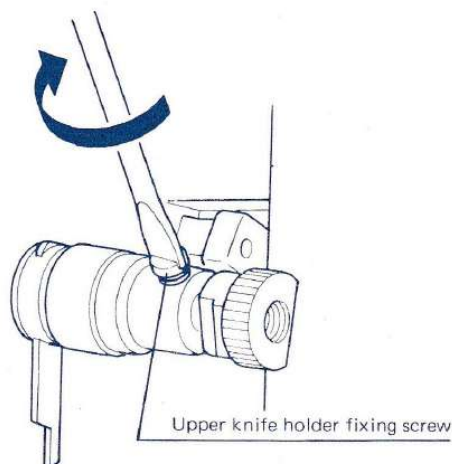


4 SEWING VERY THICK CLOTHS OR MAKING CROSS SEAMS

Tighten the upper knife holder fixing screw (Figure 38) when you are working on very thick materials or making cross seams.

NOTES:

- Be sure to bring the upper knife down to the lowest position when you tighten the upper knife holder fixing screw.
- Be sure to return the upper knife holder fixing screw to normal when you work on materials of normal thickness in the normal way (i.e. when not making cross seams). Tightening this screw will dull the work of the cutting knives.



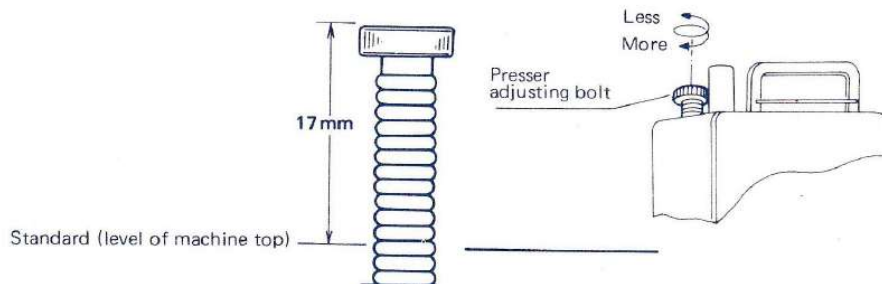
(Figure 38)

5 PRESSER FOOT ADJUSTMENT

The presser foot pressure is pre-adjusted for materials of medium (standard) thickness. Adjustment is necessary only when you work on very thin or very thick materials.

Accordingly, sew thinner materials with less pressure and thicker materials with more pressure.

How to adjust presser foot pressure



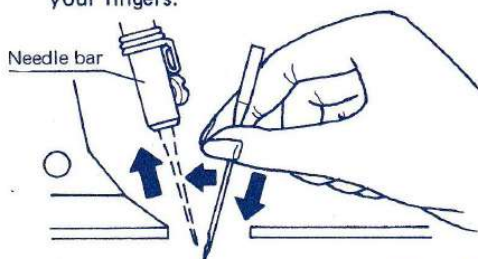
(Figure 39)

6 HOW TO REPLACE NEEDLE

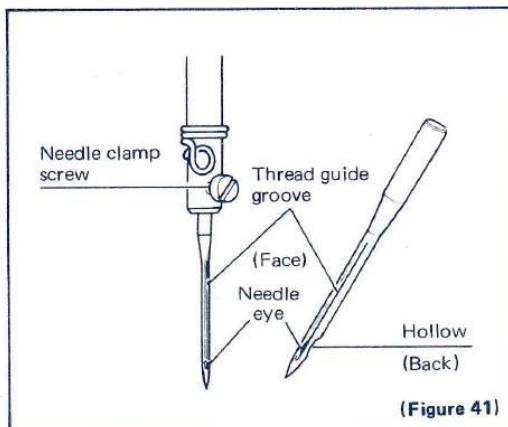
Use DC x 1 needles of No. 7 ~ No. 14, or Schmetz 621 needles of the corresponding sizes.

To replace the needles, follow the instructions below:

- (1) Turn the flywheel to bring the needle bar to the uppermost position.
- (2) Loosen the needle clamp screw and remove the old needle.
- (3) Put the tip of the new needle in the hole of the throat plate, and then the head of the needle into the needle bar hole all the way to the end.
- (4) Be sure to line up the hollow of the needle directly with the other side when you straight face the machine (Figure 41).
 - * Be careful not to mistake the thread guide groove of the needle for the hollow of the needle (see Figure 41).
- (5) Tighten the needle clamp screw firmly while holding the needle in correct direction with your fingers.



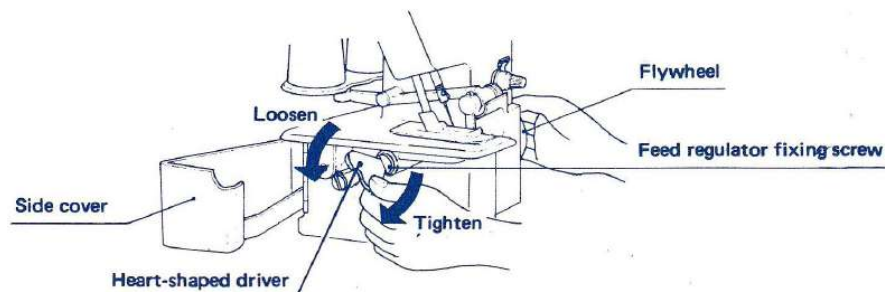
(Figure 40)



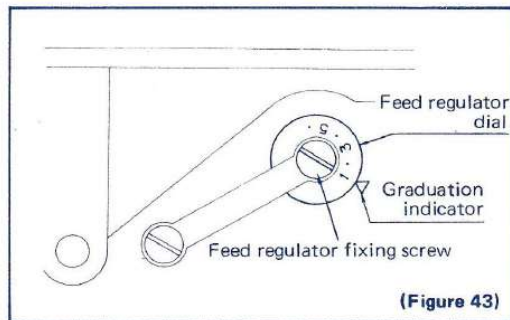
(Figure 41)

7 STITCH LENGTH ADJUSTMENT

- (1) Loosen the feed regulator screw with the heart-shaped driver (accessory) while holding the flywheel tight with your right hand.
- (2) Turn the feed regulator dial to select the stitch length (feed pitch): Stitch length is longer as the number on the dial increases and shorter as it decreases.
- (3) Tighten the feed regulator screw firmly after selecting the dial.



(Figure 42)



(Figure 43)

8

BIGHT WIDTH ADJUSTMENT

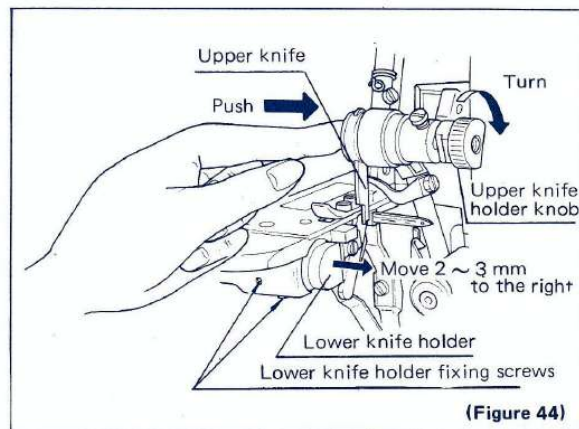
This machine is pre-set at the overedge bight of 3.5 mm, which is standard. The bight can be varied easily from 2.5 mm to 5 mm as desired. To change the bight width, refer to Figure 44 and follow the instructions below:

- (1) Turn the flywheel clockwise to bring the needle to the upper most position.
- (2) Open both the knife cover and side cover.
- (3) Push the upper knife holder with a finger and turn the knife holder knob clockwise to bring the knife blade 180° out of work position.
- (4) Loosen both lower knife holder fixing screws to move the holder 2 ~ 3 mm to the right.
- (5) Loosen the bight adjusting screw (Figure 46) to re-set the throat plate tongue (Figure 45) according to the desired new bight width, which can be selected freely at any length within the range of 2.5 mm ~ 5 mm.

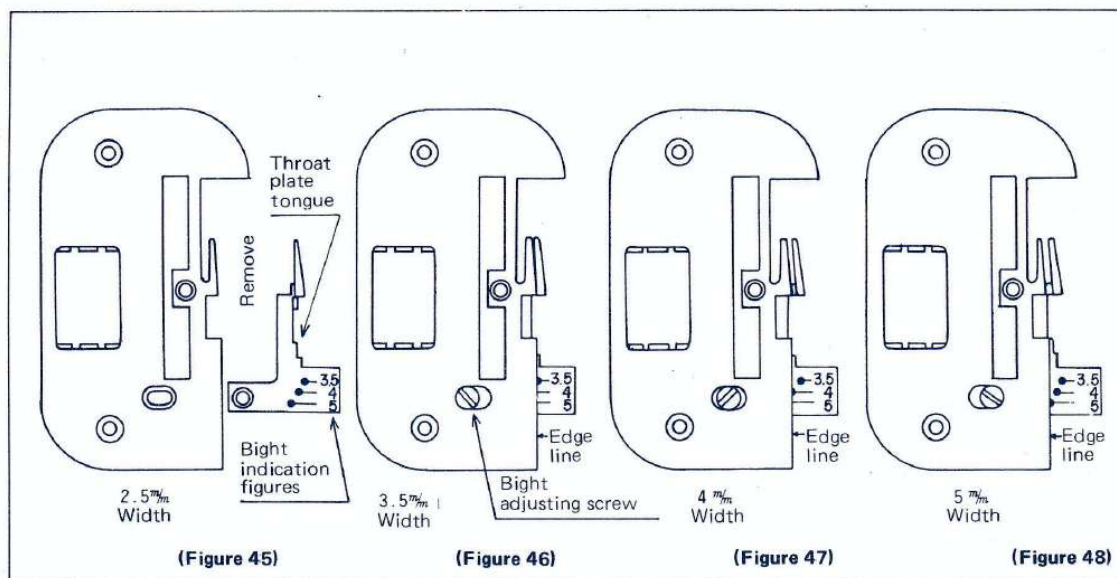
The bight width will be guided by the bight reference points on the throat plate edge line, as shown in Figure 46 ~ 48.

A bight of 2.5 mm is obtained when you remove the plate tongue and do not use it.

- (6) Set the lower knife holder back in place and tighten the lower knife fixing screw firmly.
Be sure, then, to make the level of the lower knife tip even with the surface level of the throat plate.
- (7) Return the upper knife to its normal place.
* After bight adjustment, by turning the flywheel slowly by hand, make sure that the upper looper does not hit other parts.



(Figure 44)



(Figure 45)

(Figure 46)

(Figure 47)

(Figure 48)

9

REPLACING KNIVES

For safety, be sure to remove the power supply plug from the power supply socket before starting work.

In most cases, you only have to replace the lower knife when cutting becomes difficult.

9-1 How to replace the lower knife

Replace the lower knife when the upper knife is at its highest position.

- (1) Turn the lower knife auxiliary screw counter-clockwise by 45 degrees (1/8 turn) to release its pressure acting on the lower knife (Figure 50-1).
 - (2) Loosen the lower knife clamp screw to remove the old lower knife (Figure 50-1).
 - (3) Put the new knife in place from below so that it fits into the indented cut of the throat plate. Tighten the lower knife clamp screw so that the level of the lower knife tip is even with the surface level of the throat plate, as shown in Figure 50-2.
 - (4) Turn the lower knife auxiliary screw clockwise by 45 degrees (1/8 turn) to cause it to exert pressure on the lower knife (Figure 50-2).
- * Handle both the lower knife auxiliary screw and the lower knife clamp screw by using the attached screwdriver.

9-2 How to replace the upper knife

In most cases, you will not need to replace the upper looper, the cutting edge of which is made of a special kind of long-lasting metal.

- (1) Turn the flywheel clockwise to bring the upper knife to the lowest position.
- (2) Loosen the upper knife clamp screw so that the old upper knife can be pulled upward (Figure 49).
- (3) Put the new knife in place from above so the front corner of the cutting edge sinks about 1 mm below the level of the lower knife cutting edge, as shown in Figure 51. Tighten the upper knife clamp screw.

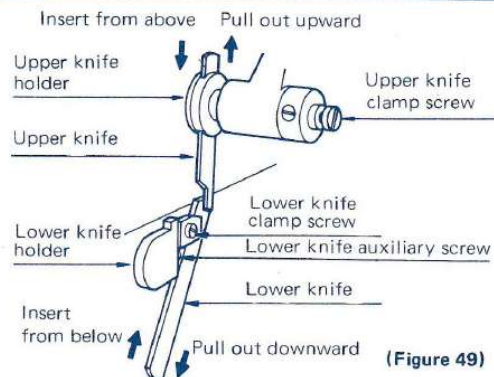
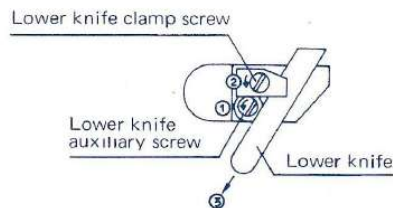
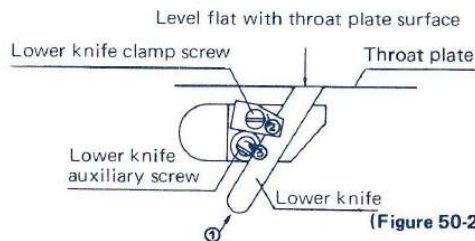


Figure showing lower knife removal.



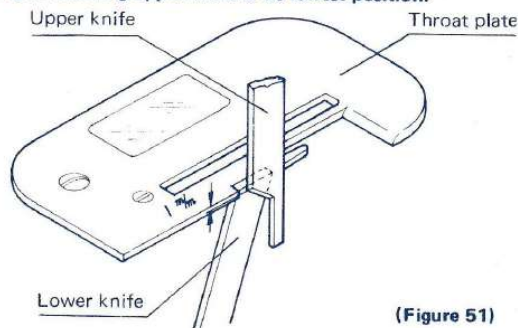
(Figure 50-1)

Figure showing lower knife mounted in position.



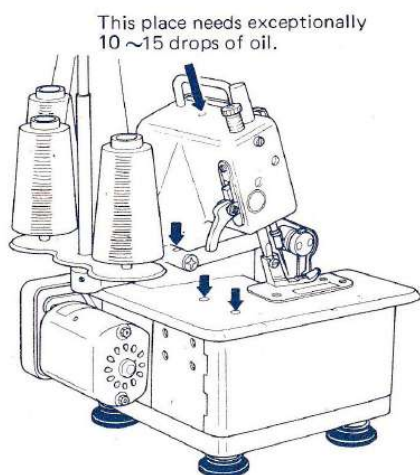
(Figure 50-2)

Figure showing upper knife at its lowest position.



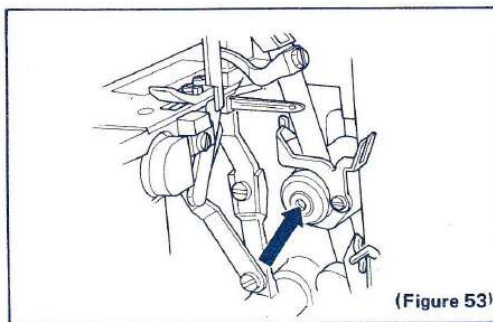
(Figure 51)

10 LUBRICATION



(Figure 52)

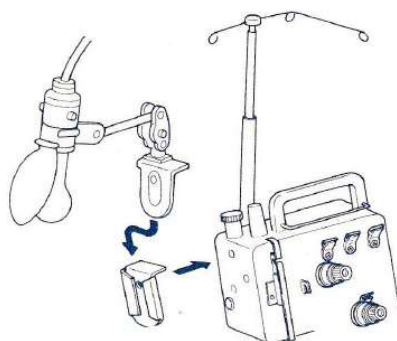
Generally, lubrication is not necessary for this machine since the important parts are all made of a special oil-impregnated sintered metal. However, just one or two drops of oil will serve to increase durability if put in the places shown in Figure 52 and Figure 53.



(Figure 53)

11 FOR SETTING SEWING MACHINE LIGHT

A light can be used with this machine. Any 'sewing machine light' that is generally on sale at sewing machine shops is acceptable. Attach it to the machine as shown in Figure 54.



(Figure 54)

12

CHECKING AND ADJUSTMENT

This machine is basically designed to require no difficult, professional adjustments.

Most troubles occur under the following five conditions. These arise when there is insufficiency in the basic adjustments. Please remember these cases which are to be first checked about when the machine gets out of condition.

(1) When the machine does not run —

- Is the power inductive plug properly put in the power supply socket ?
- Is the controller properly connected to the motor?

(2) When threads break —

- Is the threading done correctly ?
- Isn't the thread tension too strong ?
- Isn't the needle bent ?
- Isn't the needle guard scratched or damaged in any way ?
- Is the presser foot pressure proper in the strength ?
- Are all the threads proper in the kind and thickness ?
- Is the needle of proper kind and size ?
Is it set in correct way ?

(3) When the needle breaks —

- Isn't the needle in touch with throat plate, needle guard or presser foot ?
- Is the needle of proper kind and size ?
Is it set in correct way ?

(4) When skipping takes place —

- Isn't the needle bent or the tip of the needle worn out ?
- Is the needle set in correct way ?
- Is the threading done correctly ?
- Isn't the presser foot pressure too weak ?

(5) When the seam is not in good condition ?

- Are all the tension adjustments made proper ?
- Are all threadings done correctly ?

13

REPLACING CARBON BRUSH OF MOTOR

The motor of this machine has two carbon brushes set in separately under the brush cap screws (see Figure 55). After long use, they will wear out. Please replace them according to the following instructions:

(1) When to replace —

Carbon brushes should be replaced when the brush is worn to approximately 3 mm in length, as shown in Figure 55.

(2) How to replace —

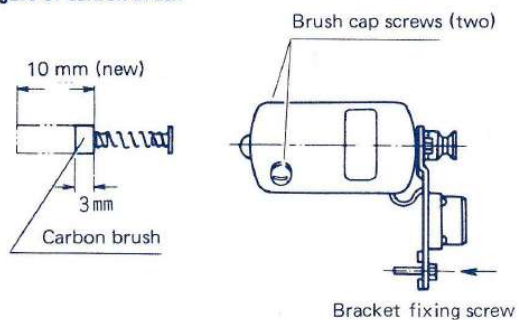
First remove the motor. Remove both brush cap screws (Figure 55) and replace the old brushes with new ones.

NOTE:

Use of worn out brushes may cause the motor to spark or cause a variety of problems.

Carbon brushes are available at any sewing machine or electric appliance shop.

Figure of carbon brush



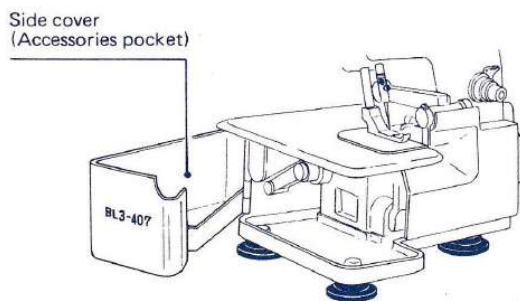
(Figure 55)

14 PACKING LIST

1. Machine body
2. Motor
3. Controller set
4. Machine cover
5. Instruction booklet
6. Accessory box
 - Screw driver
 - Spanner (for motor bracket)
 - Spanner (for upper looper)
 - L-shape hexagonal wrench (for subsidiary looper)
 - Needles
 - Lower knife
 - Tweezers
 - Cleaning brush
 - Oiler (capacity: 30 cc)
 - Heart-shaped driver (for adjusting stitch length)
 - Baby net

* Ornamental stitch guide is available as an option.

The Accessories pocket hidden behind the side cover (see Figure 56) is a convenient spot for your accessory tools for the machine.



(Figure 56)

15 SPECIFICATIONS

Item	Specification
Bight	3.5 mm (2.5~5 mm), 1.5 mm (option)
Stitch length (feed pitch)	1~5 mm
Needle bar stroke	25 mm
Knife stroke	6.5 mm
Presser foot lift	5 mm
Feed dog height	0.7 mm (standard)
Needle	DC x 1 #7~#14 or Schmetz 621 of corresponding sizes
Number of threads	3 or 2
Lubrication method	Semi-automatic oil wick lubrication
Machine dimensions	250 mm x 250 mm x 280 mm
Machine weight	8kg (with motor)

16

APPLICATION REFERENCE FOR CLOTH, THREAD AND NEEDLES

	Type of cloth		Thread	Needle
Cotton Hemp	Thin	Voile, lawn, broadcloth, gingham, flax, etc.	Cotton #100 Spun #90 ~ 80	DC #7 ~ 11
	Thick	Oxford, denim, kilting, gaberdine, etc.	Cotton #80 ~ 60 Spun #80 ~ 60	DC #11 #14
Silk		de Chine, cr�pe, organdy, satin, etc.	Silk #100 Tetron #80	DC #7 ~ 11
Wool	Thin	"Tropical" woolen cloth, "Poral" or "Fresco" (fabric with high air-permeability), woolen poplin, etc.	Spun #80 Cotton #80 Tetron #80 Silk #50	DC #11
	Ordinary	Serge, gaberdine, flano, etc.	Spun #80 Tetron #80 ~ 60 Silk #50	DC #11 #14
	Thick	Velour, camel, astrakhen, etc.	Spun #60 Cotton #60 ~ 50 Tetron #60 ~ 50 Silk #50	DC #14
Chemical, Synthetic or mixed Fiber	Thin	Georgette, voile, satin, etc.	Spun #90 ~ 80 Tetron #80 ~ 60	DC #11
	Thick	Taffeta, tweed, venetian, etc.	Spun #80 ~ 60 Tetron #60	DC #11 #14
Knitted fabric		Tricot (chemical fiber, synthetic fiber)	Spun #90 ~ 80 Tetron #80 ~ 60	DC #9 ~ 11
		Jersey (chemical fiber, synthetic fiber)	Spun #80 ~ 60 Tetron #60 Wooly (nylon, tetron)	DC #11 #14
		Woolen Yarn	Spun #80 ~ 60 Tetron #60 ~ 50 Wooly nylon Wooly tetron Andaria	DC #14

“Narrow Roll Overedging by BL3-407”

Change of the ‘standard throat plate’ with the ‘extra throat plate’ turns Model BL3-407 ready for 3-thread narrow roll overedging.

How to change the throat plate

1. Bring the needle to the uppermost. Remove the presser foot. Open both knife cover and side cover.
2. Loosen both of the lower knife holder fixing screws and move the lower knife holder slightly rightward together with the lower knife. (See Figure 44, Page 18, Instruction Booklet)
3. Remove the ‘standard throat plate’ and set the ‘extra throat plate’ in place.
4. Move back the lower knife holder to place and tighten both of the lower knife holder fixing screws. Make sure to level the tip of the lower knife blade exactly flat with the surface of the new throat plate.
5. Set back the presser foot.
6. Set the stitch length about 1 — 1.5 mm. (See Page 17, Instruction Booklet)
7. Close both knife cover and side cover.

Thread tension adjustment

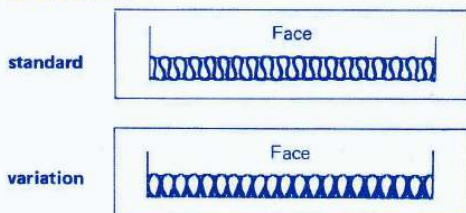
Narrow roll overedging is available in two varieties depending on the balance of the thread tension levels.

Standard:

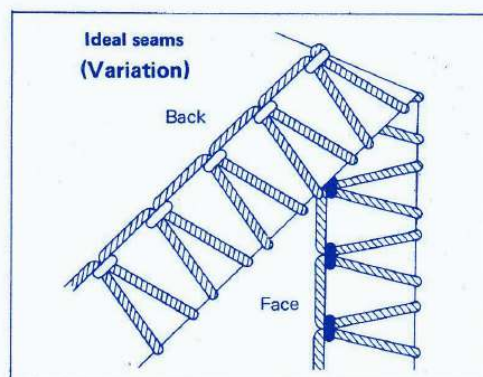
This has the same seam structure as the ordinary overedgings except for the extraordinary narrowness of the bight (overedge) width and the rolled-in edge of the sewn material. Make adjustment with reference to **Figures 30 — 33 in Instruction Booklet (Page 13 — 14)**.

Variation:

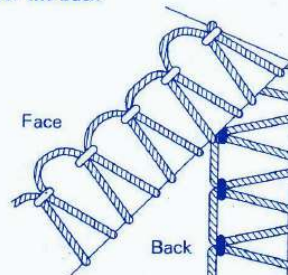
This is obtained when the tension balance of ‘standard’ narrow roll overedging is deliberately imbalanced by tightening up the lower looper thread while loosening down the upper looper thread, each to an enough extent to render a typical outlook of the stitches sketched as below:



Make ‘variation’ narrow roll overedging with reference to the seam diagrams right:

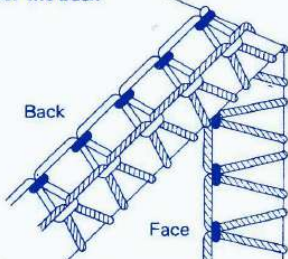


When upper looper thread laps round over the back



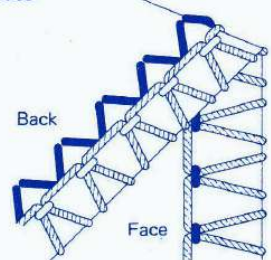
Tighten upper looper thread tension.

When lower looper thread laps round over the back

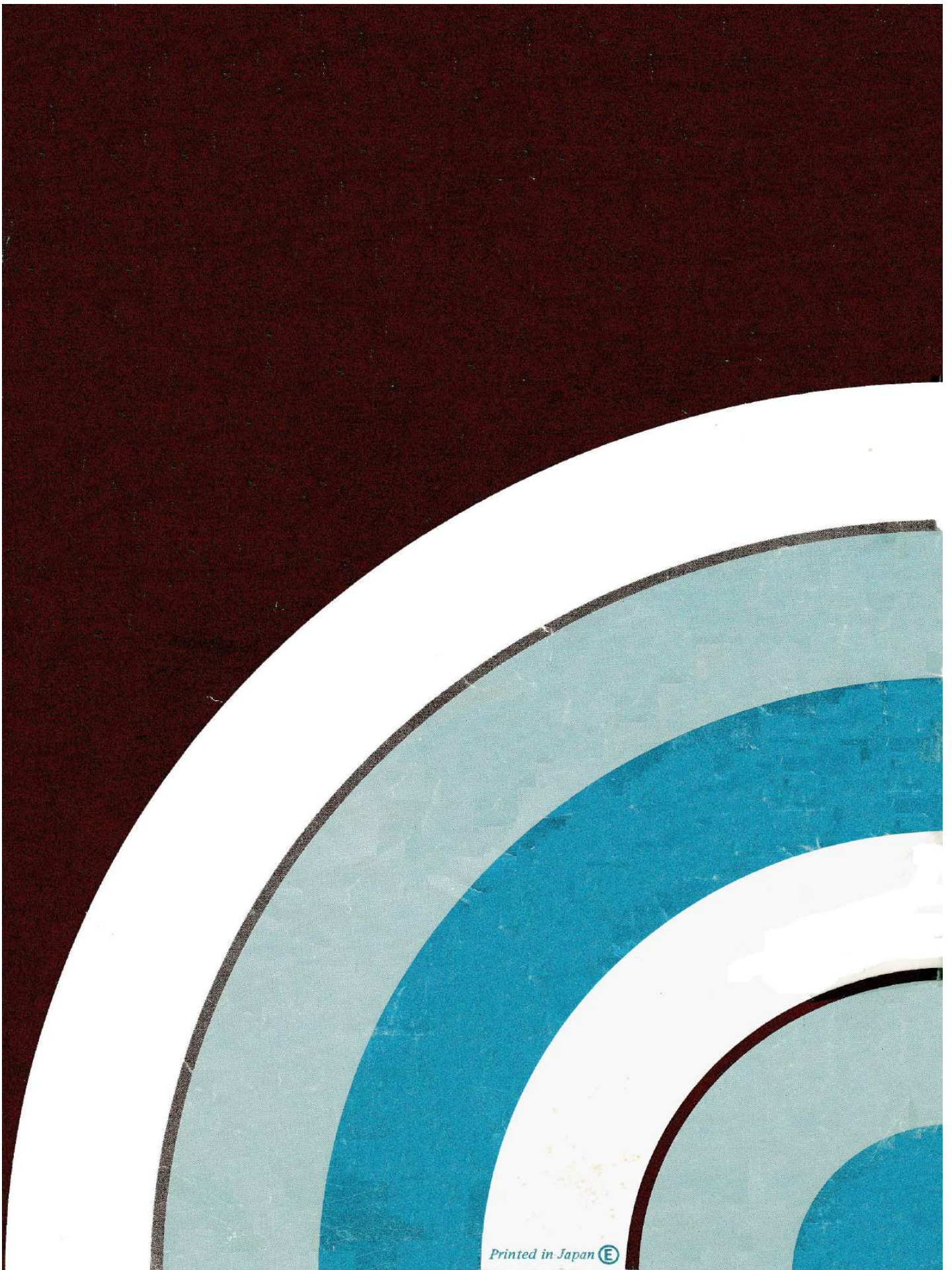


Tighten lower looper thread tension or loosen needle thread tension.

When needle thread laps round over the face



Tighten needle thread tension or loosen both upper and lower looper thread tensions.



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